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IN REPLY
REFER DSCC-VAI (Mr. Ron Gary/(614) 692-0568 May 21, 2004

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Initial Drafts of MIL-PRF-49142/3F through /12D; Connectors, Plugs and Receptacles, Electrical, Triaxial, Radio Frequency, Series TRB and TRT; Project Numbers 5935-4682-001 through –010.

The initial drafts for this subject documents will be available for viewing and downloading from the DSCC-VAI Web site within the next 5 working days:

http://www.dscc.dla.mil/Programs/MilSpec/initialdrafts.asp

Changes to this document include new part number additions that allow for the use of Nickel plated adapter bodies, contact resistance values for the new plating and format up dates. However, the entire set of specification sheets are offered up for comment.

Concurrence or comments are required at this Center within 45 days from the date of this letter. Late comments will be held for the next coordination of this document. Comments from Military Departments must be identified as either “Essential” or “Suggested”. Essential comments must be justified with supporting data. Military review activities should forward comments to their custodians, as applicable, in sufficient time to allow for consolidation of the Department reply.

Please forward your comments or concurrence electronically to the project officer listed below. This can be in the form of a return e-mail, with or without attached text files. If an electronic response is not possible, we will accept comments via letter, facsimilie, or phone call. Any further coordination concerning this document will be circulated only to firms and organizations that furnish comments or reply that they have an interest.

The point of contact for this document is Mr. Ron Gary. The preferred method of contact is via e-mail: Estel.Gary@dla.mil. Mr. Gary can also be reached at 614-692-0568/DSN 850-0568, or by facsimilie 614-692-6940.

Sincerely,

/signed/

RICHARD L. TAYLOR
Chief,
Interconnection Devices Team

Note: This draft dated 12 May 2004, prepared by the Defense Supply Center Columbus (DSCC-VAI) has not been approved and is subject to modification.
DO NOT USE PRIOR TO APPROVAL 5935-4682-005)

INCH-POUND

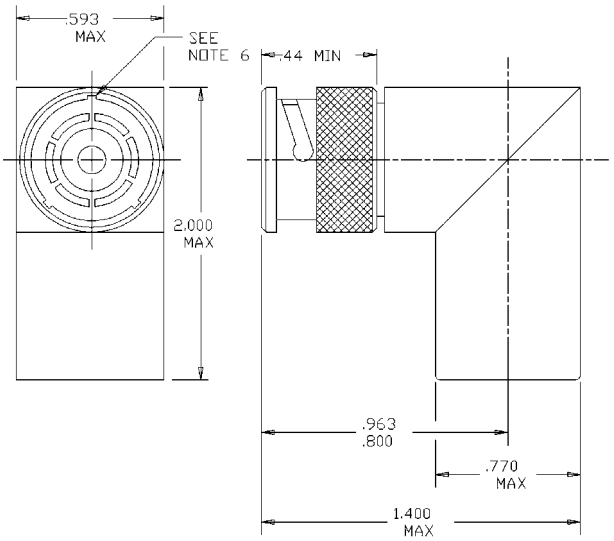
MIL-PRF-49142/7D
DRAFT
SUPERSEDING
MIL-PRF-49142/7C
27 February 2002

PERFORMANCE SPECIFICATION SHEET

CONNECTOR, PLUG, ELECTRICAL, TRIAXIAL, RADIO REQUENCY
(SERIES TRB (CABLED), PIN CONTACT, RIGHT ANGLE, CLASS 2)

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of
this specification and MIL-PRF-49142.



Inches	mm
.44	11.18
.510	12.95
.593	15.06
.770	19.56
.800	20.32
.963	24.46
1.400	35.56
2.000	50.80

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. 2.000 (50.80 mm) defines the maximum length of the connector when assembled to the appropriate cable.
4. Wrench flats are to accommodate standard wrench openings in accordance with FED-STD-H28.
5. All undimensioned pictorial representations are for reference purpose only.
6. Alternate keying configurations, see MIL-PRF-49142, figure 1.
7. Interface shall be in accordance with MIL-STD-348, series TRB, pin contact.

FIGURE 1. General configuration.

ENGINEERING DATA:

Nominal impedance: Non-constant.

Frequency range: 0 to 500 MHz minimum.

Voltage rating: 400 V rms maximum working voltage at sea level. 100 V rms maximum working voltage at 70,000 feet.

Temperature range: -65°C to +165°C.

REQUIREMENTS:

Dimensions and configuration: See figure 1 and MIL-STD-348.

Force to engage and disengage:

Longitudinal force: 4 pounds maximum.

Torque: 2.5 inch-pounds maximum.

Coupling proof torque: Not applicable.

Mating characteristics: See MIL-STD-348 for dimensions.

Intermediate contact:

Test ring ID: .169 inch maximum, 16-microinch finish.

Insertion force: 3 pounds maximum, when inserted a minimum of .093 inch,

Contacts with slotted members: Shall contact a .173 inch minimum diameter ring within .031 inch of their tip ends.

Outer contact:

Test ring ID: .319 inch maximum, 16-microinch finish.

Insertion force: 5 pounds maximum, when inserted a minimum of .093 inch.

Contacts with slotted members: Shall contact a .324 inch diameter ring within .031 inch of their tip ends.

Permeability: Applicable.

Hermetic seal: Not applicable.

Leakage: To be added.

Insulation resistance: 5,000 megohms.

Outer conductor retention: 6 pounds minimum axial force.

Dielectric withstanding voltage: At sea level, 1,200 V rms, between center conductor and intermediate conductor: 500 V rms, between intermediate conductor and outer conductor.

Salt spray (corrosion): Applicable.

Vibration: Applicable.

Shock: Applicable.

Thermal shock: Applicable (except high test temperature shall be +200°C for connectors using +200°C cables).

Moisture resistance: Applicable.

Conductor resistance: In milliohms, maximum.

	Initial	After environment
Center conductor:	2.0	2.5
Intermediate conductor	0.5	0.6
Outer conductor (Silver plated)	0.2	0.3
Outer conductor (Nickel plated)	0.4	0.6

Dash number and applicable cable: See table I.

TABLE I. Dash number and applicable cable.

*Dash number (X in the dash number allows material options, refer to the basic document)	Cable 1/
Category A – No special tools required 2/ 3/ 9/	
X001 4/ X101 X201	M17/134-00001 M17/134-00003
X002 4/ X102 X202	M17/134-00002 M17/134-00004
X003 5/	D3-7619-5/336
X004 5/	D3-7619-5/338
X005 5/	M17/116-RG307
X006 4/ X106 X206	M17/176-00002 6/
X007 4/ X107 X207	M17/177-00001 6/
X008 4/ X108 X208	M17/178-00001
X009 4/ X109 X209	M17/179-00001
X010 4/ X110 X210	M17/135-00003 M17/135-00005
X011 4/ X111 X211	M17/135-00004 M17/135-00006

See footnotes at end of table.

TABLE I. Dash number and applicable cable – Continued.

*Dash number (X in the dash number allows material options, refer to the basic document)	Cable 1/
Category G – Use of MIL-C-22520 tool required for assembly 2/ 7/ 8/ 9/	
X012 4/ X112 X212	M17/135-00003 M17/135-00005
X013 4/ X113 X213	M17/134-00001 M17/134-00003
X014 4/ X114 X214	M17/134-00002 M17/134-00004
X015 4/ X115 X215	M17/116-RG307
X016 4/ X116 X216 X016 4/ X116 X216	M17/45-RG108 M17/186-00001
X017 4/ X117 X217 X017 4/ X117 X217	M17/176-00002 6/
X018 4/ X118 X218	M17/177-00001 6/
X019 4/ X119 X219	M17/178-00001
X020 4/ X120 X220	M17/179-00001
X021 4/ X121 X221	M17/135-00004 M17/135-00006

* Not for Naval Air Systems Command (AS) use.
1/ The latest version of each cable shall be applicable.
2/ These connectors have captivated center contacts.
3/ Not for Navy use. **THIS NOTE WILL BE DELETED.**
4/ Preferred keying arrangement.
5/ Inactive for new design (see table III).
6/ Cables to be used for the +200°C thermal shock test.
7/ These connectors are assembled using the applicable crimping tool to the specified cables.
8/ Complete connector assembly shall consist of a body, center contact, intermediate contact, ferrule, and assembly instructions.
9/ The "X" is placed in the dash number to allow the user connector body plating options provided in the General specification. Only connectors of the same materials are to be intermated to reduce the possibility of dissimilar problems, including galvanic corrosion.

Corona level:

Altitude: 70,000 feet.

Voltage: 250 V rms minimum.

RF high potential withstanding voltage:

800 V rms, between center conductor and intermediate conductor.

200 V rms, between intermediate conductor and outer conductor at 5 MHz to 7.5 MHz.

Leakage current: Not applicable.

Cable retention force (for cable .200 inch to .325 inch outside dimension): 40 pounds minimum.

Coupling mechanism retention force: 100 pounds minimum.

Rise time degradation: 400 picoseconds maximum. (Not applicable to connectors using twin conductor cables.)

Connector durability: 500 cycles minimum at 12 cycles per minute maximum.

Part or Identifying Number (PIN): M49142/07- (dash number from table I). **CAUTION: A NICKEL PLATED BODY COMBINATION IS AVAILABLE. THIS COMBINATION IS NOT FOR USE IN APPLICATIONS WHERE PASSIVE INTERMODULATION GENERATION (PIM) MAY BE A CONCERN.**

Group qualification: See table II.

Cross-reference of cables: See table III.

Retention of qualification: See table IV.

TABLE II. Group qualification. 1/

Groups	Submission and qualification of any of the following dash numbers	Qualifies the following dash numbers
I	X*01 X*02 X*07	X*01 X*02 X*07
II	X*03 X*04 X*08 X*09	X*03 X*04 X*08 X*09
III	X*06	X*06
IV	X*13 X*14 X*15 X*18	X*13 X*14 X*15 X*18
V	X*16 X*17	X*16 X*17
VI	X*19 X*20	X*19 X*20
VII	X010 X110 X210 X011 X111 X211	X010 X110 X210 X011 X111 X211
VIII	X012 X112 X212 X021 X121 X221	X012 X112 X212 X021 X121 X221

1/ If a connector manufacturer produces a connector which meets all the requirements for two or more connector PINs (within same series), the manufacturer may receive qualification approval for two or more connector PINs by qualifying the one connector. It is not necessary that such connectors be in the same group. Each connector, however, must be marked with its own appropriate PIN. For group qualification, the connectors must be of similar design. Qualification of connectors qualifies connectors of the same body material and finish only. X Designates body material and finish. * designates keying (see MIL-PRF-49142).

TABLE III. Cross-reference of cables.

Preferred cable	Superseded cable
M17/177-00001	380-10045-1
M17/178-00001	D3-7619-5/336
M17/179-00001	D3-7619-5/338

TABLE IV. Retention of qualification. 1/ 2/

Subgroup	/3 & /8		/4 & /10	/5 & /9		/6 & /11	
1	/3-X*08	---	/4-X*04	---	---	---	---
2	/3-X*08	/8-X*06	/4-X*04	---	---	---	/11-X*06
3	/3-X*08	/8-X*06	---	---	---	---	---
4	/3-X*08	/8-X*06	---	---	---	/6-X*07	/11-X*06
5	/3-X*08	---	/4-X*04	---	---	---	---
Units	15	9	9	0	0	3	6

1/ Retention of qualification of connectors allows for retention of connectors of the same body material and finish only. X Designates body material and finish.
2/ The * signifies connector keying configuration. Only one keying configuration is required to retain all keying combinations.

Referenced documents:

MIL-PRF-49142
MIL-C-17
MIL-C-25520
MIL-STD-348

NOTE: Revision letters are not used to denote changes due to the extensiveness of the changes.

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - EC
Air Force - 11
NASA - NA
DLA - CC

Preparing activity:
DLA - CC

(Project 5935-4682-005)

Review activities:
Army - AR, AT, MI
Navy - AS, MC, OS, SH
Air Force – 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.